



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

D117-762-041
Job Sheet 178423



Part No: D117-762-041

Job Qty: 1 ea

Part Name: Replacement Skidtube



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 5/31/18

Job Tracking No:

Due Date: 7/10/18

Created By: Jesse White

Type: SOLD

Description:

Note: DWG D3582 REV E IPP Rev:A 07.06.11 New Issue EC IPP Rev:B 08-02-22 change to revA as per dwg DD verF by:EC IPP REV:C 15.06.11 AS PER CHG002 DD VERF:JLM IPP REV:D 16.02.05 DWG REV:C (ecn16-514) DD VERF:JLM IPP REV:E 17.01.17 as per dwg REV.D DD VERF:JLM

Ship Via:

Bill of Materials



Dart Aerospace Ltd.
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CANADA
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Email: sales@dartaero.com
www.dartaerospace.com

Container No: S084652



Part: D117-762-041

Job No: 178423

Serial No/Batch: S084652

Revision:

Inspector:

Exp Date:

Instructions:

Date: 06/26/18

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	1 Ea	7/10/18	7/10/18	0.00	0.00	Start Up Skidtubes-1		3E
130	Skidtubes	1 pcs	7/10/18	7/10/18	0.00	3.47	Skidtubes-1		3E
140	Skidtubes	1 pcs	7/10/18	7/10/18	0.00	3.47	Skidtubes-1		3E DAS
150	QC	1 pcs	7/10/18	7/10/18	0.00	0.00	QC10		3E 38 DAS
160	QC	1 pcs	7/10/18	7/10/18	0.00	0.00	QC5		9-89 38
170	HandFinish	1 pcs	7/10/18	7/10/18	0.00	0.97	HandFinish1		SA 18-07-10
180	QC	1 pcs	7/10/18	7/10/18	0.00	0.00	QC7-1		3E
190	Skidtubes	1 pcs	7/10/18	7/10/18	0.00	3.47	Skidtubes-1		3E DAS
200	QC	1 pcs	7/10/18	7/10/18	0.00	0.00	QC10		3E 38 DAS
210	QC	1 pcs	7/10/18	7/10/18	0.00	0.00	QC5		9-89 38
215	HandFinish	1 pcs	7/10/18	7/10/18	0.00	0.97	HandFinish2		SA 18-07-12
220	Powdercoat	1 pcs	7/10/18	7/10/18	0.00	0.26	Powdercoat1		SA 18-7-16
230	QC	1 pcs	7/10/18	7/10/18	0.00	0.00	QC3		SA 18-7-16
250	HandFinish	1 pcs	7/10/18	7/10/18	0.00	0.97	HandFinish4		DAS
260	QC	1 pcs	7/10/18	7/10/18	0.00	0.00	QC5		DAS 38
270	Packaging	1 pcs	7/10/18	7/10/18	0.00	0.00	Packaging3-1		JUL 26 2018
275	DC	1 pcs	7/10/18	7/10/18	0.00	0.00	DC		JUL 26 2018
280	QC21-FG	1 Ea	7/10/18	7/10/18	0.00	0.00	QC21		JUL 26 2018

Part Op 130 - 1-Cut Aft end using DT8185 2-Deburr ends 3-Drill Aft Cap holes using DT8678 *** OPEN AFT CAP HOLE TO .187"

Descriptions: *** 4-Locate DT 8973 from aft cap holes & Drill Ground wire hole on top of Tube. 5-Install 3/16 cleco in Ground wire hole, then drill all X-Bolt holes using 3/16" drill. 6-Drill pilot holes for wearplates using DT8900 7-Open wearplate holes to Ø19/64" (0.297") as per Dwg D3582. 8-Drill holes for D5520-1 doubler using DT10309 A & B, locating from 4th and 5th crossbolt holes from aft using .1875 clekos. Spot drill tube using #20 drill (note 10). Remove DT10309 B. Re-install DT 10309 A drill thru tube and doubler using #20 drill (note 10), cleko as you go. Remove .1875 clekos and open holes in tube and doubler to 0.750". Remove doublers and identify orientation. 9-Deburr doubler and doubler holes in skid tube. 10-Countersink doubler holes in skid tube as per Dwg. detail J and note 12 -Touch up alodine on D5520-1 doublers. 11-open ground wear holes to 0.391" as per section B-B 12-Open Aft Cap holes using .209" drill. 13-Drill pilot holes for section D-D and E-E. Holes must be laid out by hand. Mark out Center line and make sure that 6.65 and 5.906 measurements are respected. Double check before drilling, do not open holes to finish size. 12-Do not open holes of section G-G to finishes size.

140 - 1-Weld fwd cap D2964 per dwg D3582 and QSI 004 A/R AL ROD Batch: 138834 2-Grind flush

190 - ***MASK OFF HOLES OF SECTION F-F (DO NOT C'SINK) 1-Open X-Bolt holes to finish size as per Dwg D3582, sections D-D, E-E, G-G as per Dwg. 2-Counter Sink X-BOLT holes as per Dwg D3582 D-D, E-E and G-G.***Do NOT countersink holes of section F-F). 3-Deburr and blow out chips from inside of tube, prep. tube for welding. 4-Install doublers using DT10309 B. Shave rivets as required. 5-Bond web as per Dwg D3582 & QSI 015 A/R 241 Sika Flex Batch: M138874 Exp Date: 06-MAR-2019 6- Swage x-bolt spacer as per dwg and Section F-F QSI002. 7-Weld x-bolt spacers as per Dwg D3582 section D-D, E-E and G-G. A/R AL ROD Batch: 138834 8-Grind welds flush

215 - Touch-up alodine as per QSI

220 - START TIME 10:05 OVEN TEMPERATURE: 300° FINISH TIME: 10:35

250 - 1-Inspect for Foreign objects 2-Install Aft cap as per Dwg D3582, Detail "C" A/R 241 Sika Flex

Batch: M138782 Exp Date: 12/18 3-Install Wearplates as per Dwg D3582, Note: Install Bolt and washer on Ground Wire inserts on top of tube see section D-D of dwg D3582 *****Do not install bolts where indicated on Dwg(Note #6)***** 4- Wing Walk as per Dwg D3582 and QSI 005 4.4

270 - Identify and pack for shipping as per PPP D117-762-041 Location :FG081

275 - Photocopy bluefile & type labels per PPP D117-762-041 CHG003

Job BOM					60 4441
Part / Item	Component Name	Quantity	Operation	Container	
D3582-1-BENT	Skidtube Assembly BK117	1 Ea (1 ea)	90-Start up Operation	5042815	
D5520-1	Doubler	2 Ea (2 ea)	130-Skidtubes	5045659	
D2964	Cap	1 Ea (1 ea)	140-Skidtubes	5077380	
CR3212-5-05	Rivet	68 pcs (68 ea)	190-Skidtubes	5061800	
D2971	Cross Bolt Spacer	1 Ea (1 ea)	190-Skidtubes	5055910	
D3584-1	Web	1 Ea (1 ea)	190-Skidtubes	5008618	
D3662-1	Crossbolt Spacer	3 Ea (3 ea)	190-Skidtubes	5051529	
D3662-3	Crossbolt Spacer	1 Ea (1 ea)	190-Skidtubes	5016006	
D5304-1	Crossbolt Spacer	2 Ea (2 ea)	190-Skidtubes	5055016	
ALS4-1032-130	Rivnut	36 Ea (36 ea)	250-HandFinish	5007279	
ALS4-428-165	Insert	2 Ea (2 ea)	250-HandFinish	5058145	
AN3C4A	Bolt	28 Ea (28 ea)	250-HandFinish	5068647	
AN4-4A	Bolt	2 Ea (2 ea)	250-HandFinish	5044215	
D2965	Cap	1 Ea (1 ea)	250-HandFinish	5045482	
D3508-11	Wearplate Aft Center	1 Ea (1 ea)	250-HandFinish	5057790	
D3508-13	Wearplate Aft	1 Ea (1 ea)	250-HandFinish	5045060	
D3508-3	Wearplate Fwd Center	1 Ea (1 ea)	250-HandFinish	5043050	
D3508-9	Wearplate Fwd	1 Ea (1 ea)	250-HandFinish	5045058	
D3558-11	Gasket Aft Center	1 Ea (1 ea)	250-HandFinish	5068233	
D3558-13	Gasket Aft	1 Ea (1 ea)	250-HandFinish	5058253	
D3558-3	Gasket Center Fwd	1 Ea (1 ea)	250-HandFinish	5077342	
D3558-9	Gasket Fwd	1 Ea (1 ea)	250-HandFinish	5058248	
NAS1149C0332R	Washer	28 Ea (28 ea)	250-HandFinish	5056493	
NAS1149D0332J	Washer	2 Ea (2 ea)	250-HandFinish	5020606	
NAS1149D0416J	Washer	2 Ea (2 ea)	250-HandFinish	5013151	
Job Allocations					
Operation	Component Part	Required	Inventory	Allocated	
90-Start up Operation	D3582-1-BENT	1	1	0	
130-Skidtubes	D5520-1	2	18	0	
140-Skidtubes	D2964	1	2	0	
190-Skidtubes	CR3212-5-05	68	746	0	
	D2971	1	4	0	
	D3584-1	1	6	0	
	D3662-1	3	10	0	
	D3662-3	1	35	0	
	D5304-1	2	27	0	
250-HandFinish	ALS4-1032-130	36	13,849	0	
	ALS4-428-165	2	108	0	
	AN3C4A	28	1,908	0	
	AN4-4A	2	47	0	
	D2965	1	82	0	
	D3508-11	1	16	0	
	D3508-13	1	13	0	
	D3508-3	1	16	0	
	D3508-9	1	10	0	
	D3558-11	1	17	0	
	D3558-13	1	11	0	
	D3558-3	1	4	0	
	D3558-9	1	12	0	
	NAS1149C0332R	28	6,681	0	
	NAS1149D0332J	2	2,003	0	
	NAS1149D0416J	2	3,010	0	
Part Specifications					
Specifications could not be found.					

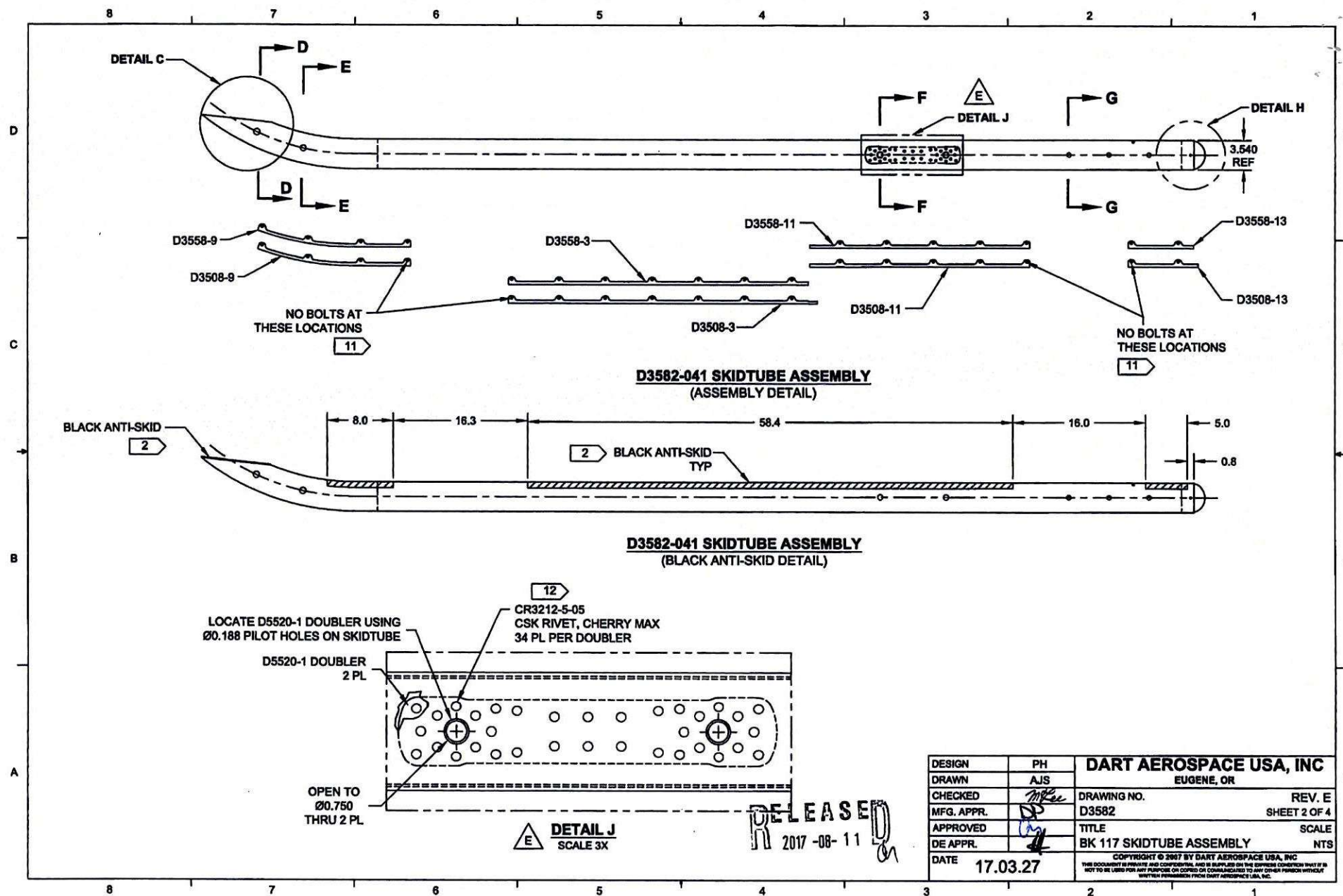
ITEM	Qty -041	Part Number	Description
	X	D3582-041	SKIDTUBE ASSEMBLY
1	1	D2962-150	EXTRUSION
2	1	D2964	CAP
3	1	D2965	CAP
4	1	D2971	CROSS BOLT SPACER
5	1	D3508-3	WEARPLATE
6	1	D3508-9	WEARPLATE
7	1	D3508-11	WEARPLATE
8	1	D3508-13	WEARPLATE
9	1	D3558-3	GASKET
10	1	D3558-9	GASKET
11	1	D3558-11	GASKET
12	1	D3558-13	GASKET
13	1	D3584-1	WEB
14	3	D3862-1	CROSS BOLT SPACER
15	1	D3862-3	CROSS BOLT SPACER
16	2	D5304-1	CROSS BOLT SPACER
17	2	D5520-1	DOUBLER
18	28	AN3C4A	BOLT
19	2	AN3-5A	BOLT
20	2	AN4-4A	BOLT
21	28	NAS1149C0332R	WASHER (AN960C10L)
22	2	NAS1149D0332J	WASHER (AN960JD10L)
23	2	NAS1149D0416J	WASHER (AN960JD416L)
24	36	AELS-1032-130	INSERT
25	2	ALST-428-165	INSERT
26	68	CR3212-5-05	CSK RIVET, CHERRY MAX

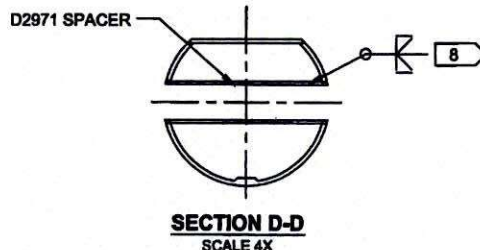
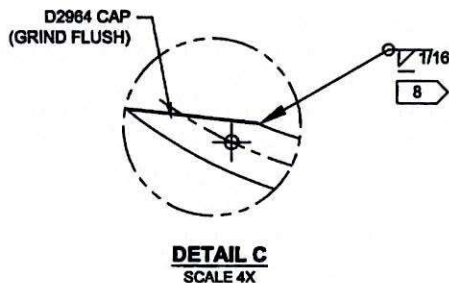
NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: CHEMICAL CONVERSION COAT PER QSI 005 4.1 PRIOR TO INSERTING D3584-1 WEB. POWDER COAT ASSEMBLY GLOSS WHITE (REF 4.3.5.1) PER DART QSI 005 4.3. ANTI-SKID PAINT AS INDICATED TO 1.00 ABOVE CENTER LINE PER DART QSI 005 4.4
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: 18.2 lbs
- 8) WELDING: PER DART QSI 004.
- 9) INSERT D3584-1 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241/-291 ADHESIVE PER DART QSI 015 AFTER BENDING.
- 10) USE DART DRILL TEMPLATE DT8900 TO LOCATE AND DRILL Ø0.297 HOLES (36 PLACES) FOR WEARSHOE INSERTS. INSTALL AELS-1032-130 PER SECTION G-G (36 PLACES) AFTER FINISH. SEAL WEARPLATE BOLTS WITH SIKAFLEX-241/-291.
- 11) DO NOT INSTALL AN3C4A BOLTS AND NAS1149C0332R WASHERS IN INDICATED LOCATIONS
- 12) LOCATE QTY (34) HOLES ONTO THE SKIDTUBE PER D5520-1 DOUBLER AND DRILL Ø0.161 THRU SKIDTUBE AND DOUBLER USING DT10309. COUNTERSINK Ø0.286 x 100° (34 PL) PER DOUBLER AND INSTALL EACH D5520-1 DOUBLER USING QTY (34) CR3212-5-05 CSK RIVETS.

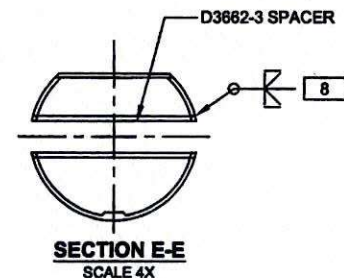
RELEASED
2017-08-11
EN 17-547

E	MOVE VIEWS FROM SHT 1 TO SHT 2. ADD ITEMS 17 & 26 AND NOTE 12-13. Ø0.187 HOLE WAS Ø0.75. ADD SHT 3, ADD DETAIL J. SECTION F-F ADD D5520-1. SCALE ON VIEWS WAS 3X.	AJS	17.03.27
D	D5304-1 WAS D2973; REVISE BOM & SECTION F-F & SECTION NOTES (ZN B7-3, A8-3); REF NCR16-6160	RF	17.01.09
C	D3492 PLUG ASSEMBLIES REMOVED. REFORMAT NOTES SHT 1	AP	15.11.02
B	29.66 WAS 29.87 (ZN C2-1), INCORPORATED DEO D3582-A-1 (ZN D5-1), FORMAT TO CURRENT STD	RF	15.02.20
A	NEW ISSUE	PH	07.06.06
REV.	DESCRIPTION	BY	DATE
DESIGN	PH	DART AEROSPACE USA, INC EUGENE, OR	
DRAWN	AJS		
CHECKED	MJE	DRAWING NO.	REV. E
MFG. APPR.	DP	D3582	SHEET 1 OF 4
APPROVED	DP	TITLE	SCALE
DE APPR.	DP	BK 117 SKIDTUBE ASSEMBLY	NTS
DATE	17.03.27	COPYRIGHT © 2007 BY DART AEROSPACE USA, INC THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL, AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

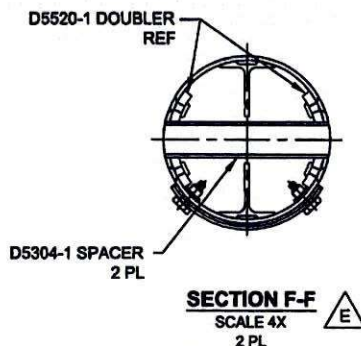




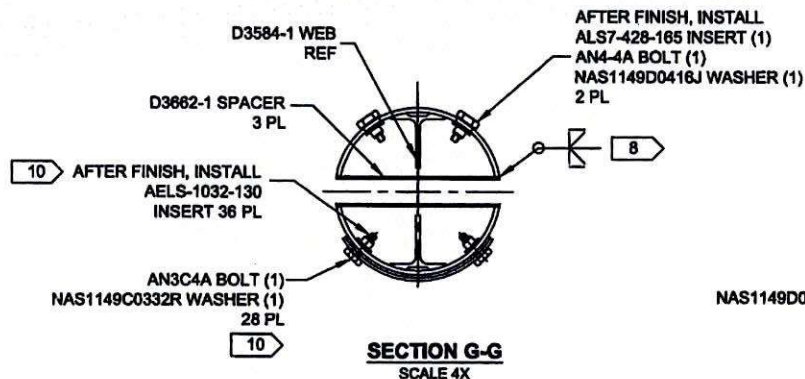
- SECTION D-D NOTES**
AFTER BENDING AND DRILLING ASSEMBLY
PERFORM THE FOLLOWING:
1. CHAMFER HOLE 0.030 x 45°
 2. INSERT D2971 SPACER
 3. WELD INTO PLACE AND GRIND FLUSH
 4. PASS Ø0.750 DRILL TO REMOVE SPILL OVER



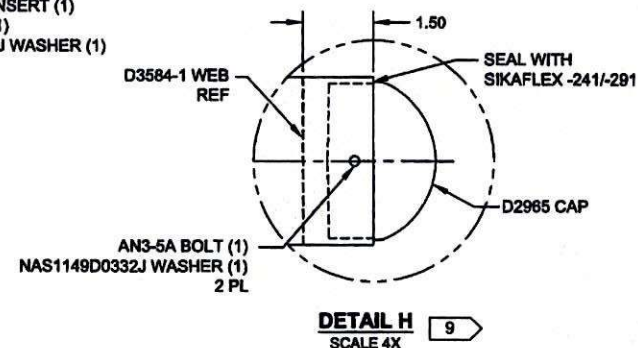
- SECTION E-E NOTES**
AFTER BENDING AND DRILLING ASSEMBLY
PERFORM THE FOLLOWING:
1. CHAMFER HOLE 0.030 x 45°
 2. INSERT D3662-3 SPACER
 3. WELD INTO PLACE AND GRIND FLUSH
 4. PASS Ø0.672 DRILL TO REMOVE SPILL OVER



- SECTION F-F NOTES**
AFTER BENDING AND DRILLING ASSY
PERFORM THE FOLLOWING:
1. INSERT D5304-1 SPACER
 2. SWAGE TO Ø0.565 +0.005/-0.000 X 1.0 DEEP PER QSI 002
 3. OPEN THRU HOLE TO Ø0.625
 4. GRIND FLUSH

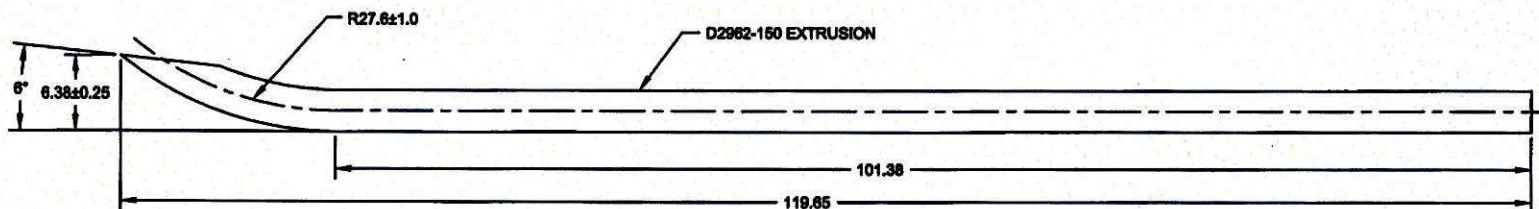


- SECTION G-G NOTES**
AFTER BENDING AND DRILLING ASSEMBLY
PERFORM THE FOLLOWING:
1. CHAMFER HOLE 0.030 x 45°
 2. INSERT D3662-1 SPACER (3 PLACES)
 3. WELD INTO PLACE AND GRIND FLUSH
 4. PASS Ø0.515 DRILL TO REMOVE SPILL OVER

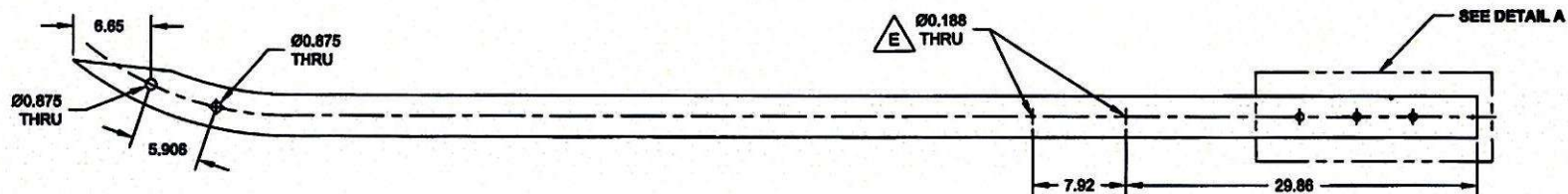


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2017-08-11

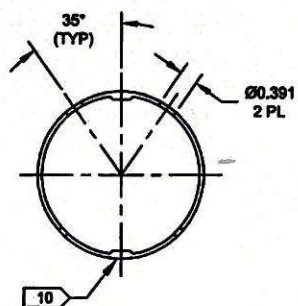
DESIGN	PH	DART AEROSPACE USA, INC	
DRAWN	AJS	EUGENE, OR	
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MFG. APPR.	<i>[Signature]</i>	D3582	SHEET 3 OF 4
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	BK 117 SKIDTUBE ASSEMBLY	NTS
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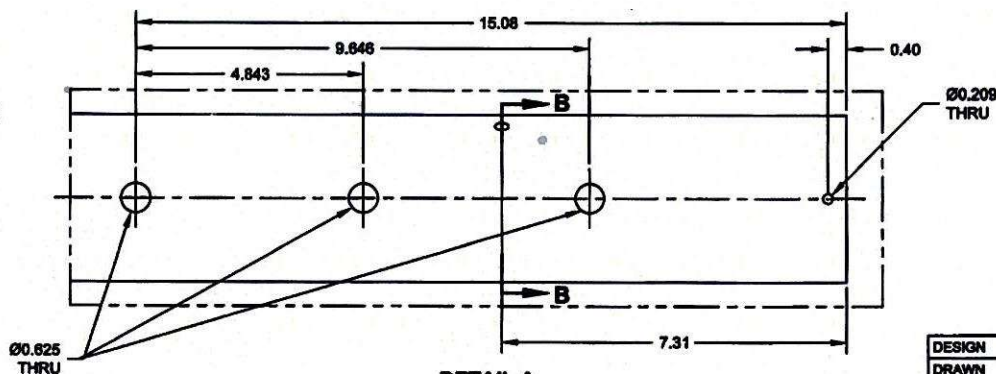
D3582-1 BENDING AND CUTTING DETAIL



D3582-1 DRILLING DETAIL



SECTION B-B
SCALE 5X



DETAIL A
SCALE 5X

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2017-08-11

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CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. E
MFG. APPR.	<i>[Signature]</i>	D3582	SHEET 4 OF 4
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	BK 117 SKIDTUBE ASSEMBLY	NTB
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5491



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Canada

Tel (613) 632-5200

RB23007638-3
Job Sheet 178454



Part No: RB23007638-3

Job Qty: 8 ea

Part Name: Cap, Modified



Part Weight: 0 lbs

Status: Scheduled

Priority: High

Job Created: 5/31/18

Job Tracking No:

Due Date: 7/23/18

Created By: Logan David

Type: SOLD

Description:

Note: IPP Rev A 17.11.03 New issue DP Verify DD

Ship Via:

726

RUSH
SVP

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	8 Ea	7/23/18	7/23/18	0.00	0.00	Start Up Machining		DAS
110	Mill Conv	8 pcs	7/23/18	7/23/18	0.00	2.00	Mill Conv 1		39
120	QC	8 pcs	7/23/18	7/23/18	0.00	0.00	QC2		5-89
130	QC	8 pcs	7/23/18	7/23/18	0.00	0.00	QC8		18/07/23
140	Packaging	8 pcs	7/23/18	7/23/18	0.00	0.00	Packaging3		MLL
150	QC21-SA	8 Ea	7/23/18	7/23/18	0.00	0.00	QC21		

Part Op 110 - -Drill hole as per DWG.
Descriptions:

DAG
21
9-89

JUL 23 2018

GA

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
AN929-4	Cap	8 Ea (1 ea)	90-Start up Operation	5031391 51322

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
90-Start up Operation	AN929-4	8	20	0

Part Specifications

Specifications could not be found.



Container No: S094933



Part: RB23007638-3

Job No: 178454

Serial No/Batch: S094933

Revision: 3

Inspector:

Exp Date:

Instructions:

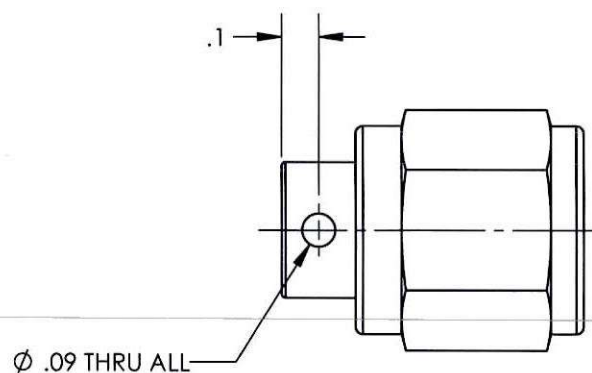
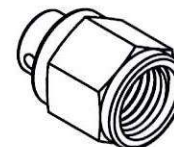
Date: 07/23/18

Dart Aerospace Ltd.
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Email: sales@dartaero.com
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Plex 7/20/18 3:56 PM dart.logan.david

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REVISIONS				DATE	INITIAL	APPROVED
REV	ECR	DESCRIPTION				
3	15-0471	-3 ADDED DRAWING.			1/5/2016	DPD JAG



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NO. 178454
20180720

(-3)

CAP

DART AEROSPACE	
TITLE WRENCH - FUEL INJECTOR	
DWG NO. RB23007638-3	REV 3
MAT'L ALUMINUM	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
HEAT TREAT	.XXX ± .005 FRACTIONS ± 1/8
FINISH	.XX ± .01 ANGLES ± 5°
SPEC	.X ± .1 SURFACES = 125/√
DRAWN BY: COLE	1. BREAK ALL SHARP EDGES .015 x 45° OR .015R
CHECKED:	2. DIMENSIONAL LIMITS APPLY AFTER PLATING
OPPS APPR:	3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009
QA APPR:	USED ON MODEL
APPROVED:	SEE NOTE 2 SHEET 1
SCALE 2:1	DATE 8/25/2003 SHEET 3 OF 3

178454

INSPECTION SHEET

[illegible]

Measured by:	39 9-89	Checked by:		QC Inspector:	
Date:	8/7/23	Date:		Date:	

Engineering Approval: (If necessary)		Date:	
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Rev	Date	Change	Revised by	Approved
A	14.07.31	New Issue	KJ	